

BMJ Open Electronic nicotine delivery system landscape in licensed tobacco retailers: results of a county-level survey in Oklahoma

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ABSTRACT

Objectives: Electronic nicotine delivery systems (ENDS) have recently emerged as a component of the tobacco retail environment. The aims of this study were to describe the availability, types of ENDS and placement of ENDS relative to traditional tobacco products at franchised licensed tobacco retailers and non-franchised licensed tobacco retailers.

Design: Observational study.

Setting: Franchised and non-franchised tobacco retailers in Cleveland County, Oklahoma, USA.

Primary and secondary outcome measures: The number of stores selling ENDS, the variability in brands of ENDS sold, the location of the ENDS within the retailers, the quantity of ENDS sold compared with traditional tobacco products, and the presence of outdoor signage.

Results: Data from 57 randomly sampled tobacco retailers were used to describe the presence of ENDS at independent non-franchised and franchised tobacco retailers. The overwhelming majority (90%) of licensed tobacco retailers sold ENDS, and differences were observed between franchised and non-franchised stores. 45 of the 51 retailers (88%) selling ENDS had them placed at the point of sale. 2 of the 21 franchised retailers (9.5%) had ENDS placed at $\leq 3\frac{1}{2}$ feet above floor level compared to none of the 30 non-franchised retailers (0%).

Conclusions: This small study is the first to characterise ENDS within the tobacco retail environment in a county in Oklahoma, USA. The results from this study demonstrate the complexity of the tobacco retail landscape and generate questions for future studies regarding the incorporation and placement of ENDS in tobacco retail environments.

BACKGROUND

Electronic nicotine delivery systems (ENDS) are a line of new and evolving devices that can deliver nicotine, flavours and other chemicals to the user.^{1–3} ENDS lack regulatory oversight.^{1–3} The use and awareness of ENDS have grown considerably in recent years, with

Strengths and limitations of this study

- This is the first study to evaluate electronic nicotine delivery systems (ENDS) as a component of the tobacco retail environment.
- This study generates important questions regarding the incorporation and placement of ENDS in tobacco retail environments.
- The results of our study are limited due to the small sample size and single geographic location included.
- Data were not collected on exclusive vapour retailers or online sales.

sales more than doubling between 2012 and 2013.^{4 5} Moreover, tobacco companies continue to enter into the ENDS market and leverage existing relationships with traditional tobacco retailers, which underscores the need for regulation.⁵ Currently, no legislation is in place to regulate the sale and advertisement of ENDS in the USA, and most states do not license the sale of ENDS. As a result, there is no way to monitor their sale and distribution. To date, no published studies have evaluated ENDS as a component of the tobacco retail environment. The tobacco landscape has become increasingly complex on introduction of ENDS, and thus the tobacco advertising landscape and placement of these products in retail environments has created new challenges. The purpose of this study was to (1) describe the availability of ENDS relative to traditional tobacco products at licensed tobacco retailers; (2) assess the type of ENDS in retailers; (3) examine the placement of ENDS in retail environments.

METHODS

This study used data from randomly sampled tobacco retailers in Cleveland County, Oklahoma. With a population of ~270 000, Cleveland County is the third most populous

county in Oklahoma.⁶ In addition, it is centrally located within the state and is home to the University of Oklahoma. The sampling frame consisted of 191 stores licensed to sell tobacco in Cleveland County. These stores were identified from the 2015 Retail Tobacco list, made publicly available by the Oklahoma Tax Commission. Since we anticipated differences in the volume and type of ENDS sold by type of tobacco retailer, stores were stratified into either a franchised strata (n=96), which consisted of 12 unique franchised stores, or an independent non-franchised store strata (n=95). Despite an active license to sell tobacco products, as of October 2014, tobacco products were no longer available for purchase at CVS locations. Thus, we excluded CVS stores. Bars and restaurants with a tobacco license to sell cigars only were also excluded. Twenty-two retailers were randomly selected from the franchised strata (two from each of the 11 franchises), and 35 retailers were selected from the independent, non-franchised store strata to make up a total sample size of 57 stores. The survey used for this study was novel and adapted from questions from the Point of Sale Environment for Alcohol and Tobacco measure found in the PhenX Toolkit (#550800) as well as questions used in previous studies (see online supplementary file S1).^{7 8} Two trained data collectors visited stores during June and July 2015 and completed a brief survey addressing the tobacco retail environment. The data collectors visually assessed the environment in the retail store and annotated what they saw in the survey. Specifically,

survey questions addressed whether or not the retailer sold ENDS in addition to other tobacco products, the types of ENDS sold, where the ENDS were located, and whether outdoor signage was present. We were able to complete the survey with 100% of those who were randomly sampled for the study.

RESULTS

Overall, 89.5% of retailers sampled sold ENDS in addition to traditional tobacco products (table 1). All but one franchised retailer sold ENDS (95.5%), and 84.7% of independent retailers sold ENDS. Among stores that sold ENDS, 90.2% carried 'cigalikes', 37.3% sold cartridges/refills for cigalike devices, and 15.7% carried tank systems. Twenty per cent of independent non-franchised stores carried tank systems as did 9.5% of franchised retailers. Moreover, 40% of independent non-franchised stores carried e-juice refills as did 14.3% of franchised retailers.

In regards to brands, the majority (86.3%) of retailers sold less than five brands of ENDS products. Among independent non-franchised stores, 16.7% carried more than five brands of ENDS versus 9.5% of franchises. The majority (88.2%) of stores placed the ENDS behind the checkout counter, and this was observed among 96.7% of independent non-franchised stores and 76.2% of franchises. About half (51.0%) of all retailers placed ENDS next to combustible cigarettes, and this observation was similar for franchised (52.4%) and non-franchised stores (50.0%). The proportion of franchised tobacco retailers and

Table 1 Summary of survey results by store type

	Franchised stores (n=22) % (count)	Independent, non-franchised stores (n=35) % (count)	Total (n=57) % (count)
Stores selling ENDS	95.5 (21/22)	84.7 (30/35)	89.5 (51/57)
Types of ENDS sold			
Cigalikes	95.2 (20/21)	86.7 (26/30)	90.2 (46/51)
Cartridges/refills	52.4 (11/21)	26.7 (8/30)	37.3 (19/51)
Tank systems	9.5 (2/21)	20.0 (6/30)	15.7 (8/51)
Variability in ENDS brands			
Less than five brands	90.5 (19/21)	83.3 (25/30)	86.3 (44/51)
More than five brands	9.5 (2/21)	16.7 (5/30)	13.7 (7/51)
ENDS location			
At the check-out counter but behind the counter	76.2 (16/21)	96.7 (29/30)	88.2 (45/51)
Next to combustible cigarettes	52.4 (11/21)	50.0 (15/30)	51.0 (26/51)
In locked or closed cabinet	23.8 (5/21)	3.3 (1/30)	11.8 (6/51)
≤3½ feet above ground	9.5 (2/21)	0 (0/30)	3.9 (2/51)
Next to smoking cessation products	0 (0/21)	3.3 (1/30)	2.0 (1/51)
ENDS variety compared to tobacco			
A lot more tobacco products	95.2 (20/21)	93.3 (28/30)	94.1 (48/51)
A little more tobacco products	4.8 (1/21)	3.3 (1/30)	3.9 (2/51)
An equal amount of EC products	0 (0/21)	3.3 (1/30)	2.0 (1/51)
Outdoor signage	33.3 (7/21)	50.0 (15/30)	43.1 (22/51)

EC, electronic cigarettes; ENDS, electronic nicotine delivery systems.

independent non-franchised stores that placed ENDS in a locked or closed cabinet was 23.8% and 3.3%, respectively. Placement of ENDS below or at a height of 3½ feet was observed only at franchised retailers (9.5%). Less than half (43.1%) of retailers sampled displayed outdoor signage to advertise ENDS. Half of independent non-franchised stores had signage, while 33.3% of franchises had signage.

DISCUSSION

Sales of ENDS have more than doubled during 2012 and 2013, from US\$273.6 million to US\$636.2 million, respectively.⁵ Owing to concerns related to this growth, the overarching purpose of this study was to determine the extent to which ENDS are available within the tobacco retail environment. We found that the majority of sampled licensed tobacco retailers sold ENDS in addition to traditional tobacco products. When assessed by store type, the observed proportion selling ENDS and volume of ENDS products differed between independent non-franchised stores and franchised stores. The proportion of independent non-franchised stores that sold ENDS was lower (85%) than the proportion of franchises (96%) that sold ENDS. However, the proportion of independent non-franchised stores selling more than five brands was higher (17%) than the proportion of franchised stores (10%) selling more than five brands. Conversely, the proportion of franchises that carried cigalikes and cartridges was higher (95%) than the proportion among independent non-franchised stores (87%). The availability of cigalike devices, such as Vuse and MarkTen, is likely due to these devices being manufactured by cigarette companies, such as Reynolds and Philip Morris, and the existing relationships between these companies and franchised retailers.^{5,9}

Out of the US\$9.6 billion a year spent on cigarette marketing in the USA, an amount of US\$9.2 billion is spent on point-of-sale (POS) advertising and promotion.⁶ POS advertising and promotions target consumers at the place where they can immediately buy the product, and have been found to impact not only what products and brands children use, but also the chances that they will start smoking.^{10–12}

Previous studies have found a significant amount of cigarette advertising at the eye level of young children, and that this placement is acknowledged by youths and may influence smoking prevalence in youths.^{13–17} WHO has also reported that countries that allow point-of-sale marketing and pack displays have higher smoking prevalence in adults.¹⁸ In our study, a greater proportion of franchises had ENDS in a locked or closed cabinet than independent non-franchises. In regards to product height, we observed that 10% of franchised tobacco retailers placed ENDS below or at a height of 3½ feet. In addition to height, outdoor advertising of age-restricted products is concerning due to children being unable to avoid exposure to outdoor advertising, and thus, encouraging the use of products that they cannot legally

purchase.¹⁹ Among sampled retailers, a greater proportion of independent non-franchised stores had outdoor signage for ENDS than franchised retailers. Ultimately, restructuring the tobacco retail environment by implementing tighter restrictions on visibility and advertising, may aid in restricting access to these products by underage youth and reduce overall smoking rates.^{20–24}

Our findings may not be generalisable, and may represent only a fraction of the ENDS retail environment. Our study was designed as a pilot with the goal of rapidly collecting surveillance data on the retail environment for ENDS. Although we anticipated and observed differences by type of retailer, it was not a goal to test for statistical differences, and thus, our study was descriptive and not powered to test hypotheses. Rather, we have described the presence of ENDS within the licensed tobacco retail environment within Cleveland County, Oklahoma.

CONCLUSION

Overall, our observation that the overwhelming majority of licensed tobacco retailers also sold ENDS demonstrates the complexity of the tobacco retail landscape and generates questions for future studies regarding the incorporation and placement of ENDS in tobacco retail environments.

Contributors LSB participated in the conception and design of the study, performed the literature search, data collection and analysis, and drafted the manuscript. DSM and LAB participated in the conception and design of the study, analysis of data and drafted the manuscript. KED participated in the conception and design of the study, data collection and drafted the manuscript. All authors read and approved the final manuscript.

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